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U.S. Patent Application Serial No. 10/009,337
Supplemental Reply to Office Action dated August 26, 2004

REMARKS

This is in supplement to the Amendment filed on December 29, 2004. Favorable reconsideration of this application is requested in view of the above amendments and the following remarks. Claims 1-11 are hereby amended and remain pending. Support for the amendments to claims 1 and 10 is found, for example, at page 7, lines 32-34 and Figure 1 of the present application. No new matter is added. Reconsideration and allowance are respectfully requested for at least the following reasons.

Applicants appreciate the courtesy extended by the Examiner to Applicants' representatives, Robert A. Kalinsky and Margaret F. Emerson, during the telephonic interview on January 11, 2005. During the interview, claims 1-11, Barrett (US 5,257,274 A), and Rhoads (US 5,661,594 A) were discussed. Agreement regarding the allowability of the claims was not reached, although tentative agreement regarding the lack of motivation to combine the cited references was reached.

In a further telephone call on February 10, 2005, the Examiner suggested adding the AOML (acousto-optical mode-locker, reference 2 of Figure 1) to claim 1. Applicants decline to limit claim 1 in this manner, as the AOML is disclosed in the specification as being one possible embodiment for the intensity limiter (see page 7, lines 18-31).

Preliminarily, it is noted that claims 1-11 are editorially amended to address informalities identified by the Examiner during the interview. None of the amendments are meant to limit the scope of claims 1-11. Consideration and entry of the amendments are respectfully requested.

Claims 1-11 were rejected as being unpatentable over Barrett (US 5,257,274 A) in view of Rhoads (US 5,661,594 A). Applicants traverse this rejection for at least the following reasons.

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As stated in the previous Amendment, claims 1 and 10 recite a solid intensity limiter whose transmission coefficient of the laser radiation passively decreases as the intensity of said radiation increases, and claim 11 recites passively limiting the intensity of the beam at the fundamental frequency. Barrett and Rhoades both disclose Q-switches that are active devices (i.e. Pockels Cell).

Therefore, neither Barrett nor Rhoades discloses or suggests a solid intensity limiter whose transmission coefficient of the laser radiation passively decreases, as recited by claims 1 and 10, or passively limiting the intensity of the beam at the fundamental frequency, as recited by claim 11. Reconsideration and allowance of claims 1, 10, and 11, as well as claims 2-9 that depend respectively therefrom, are respectfully requested.

Further, to establish a *prima facie* case of obviousness there must be a suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine teachings. It is respectfully suggested that there is no motivation to combine Barrett with Rhoades because the references teach away from one another.

Specifically, Barrett teaches an intensity limiter plate through which a laser radiation beam passes. See the Q-switch plate (9) at Figure 4 of Barrett. In contrast, Rhoades teaches a reflective GaAs plate as a Q-switch. See the Q-switch plate (132) at Figure 16 of Rhoades. While Barrett teaches passing of the laser through the plate, Rhoades teaches reflection of the laser by the plate. Because Barrett and Rhoades are configured to work in fundamentally different ways, it is respectfully suggested that one knowledgeable in the art would not look to combine these references.

Further, the technical effects obtained with the Barrett intensity limiter plate are quite different from those obtained from the claimed intensity limiter plate. See Barrett Figure 9, where it shows that the pulse duration is increased by several hundreds of a ns (curve b). In

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contrast, the plate of the claimed invention provides a reduction of the pulse duration by roughly 20ps (see Figure 3).

It is known in the art that a Q-switch is a device that is used to rapidly change the Q of an optical resonator, such as a laser. The laser action is prevented until a high level of inversion is achieved (optical gain and energy storage). The Q-switch requires a sudden increase of the transmission of the device. In contrast, the intensity limiter of the claimed invention always presents the same transmission properties to the laser beam (see, for example, page 5, lines 27-30).

While the Q-switch of Rhoads exploits the reflectivity of the GaAs plate, the intensity limiter plate of the claimed invention exploits the bulk transmission properties of the plate. Further, in contrast to the claimed invention, the Rhoads GaAs plate is required to be exposed to a short intense pulse of light (switching light). See column 10, lines 3-5 and column 11, lines 18-20. Even further, the Rhoads GaAs plate cannot be used alone, but as a substrate (see column 9, lines 66-67).

Therefore, there is no motivation for one skilled in the art to replace the Pockels cell of Barrett with the GaAs plate disclosed by Rhoads.

Reconsideration and allowance of claims 1-4 and 6-11 are therefore respectfully requested.

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In view of the above, favorable reconsideration in the form of a notice of allowance is requested. Any questions regarding this communication can be directed to the undersigned attorney, John J. Gresens, Reg. No. 33,112, at (612)371-5265.

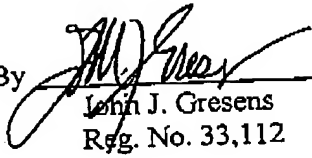


Respectfully submitted,

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Dated: February 23, 2005

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